

(12) UK Patent Application (19) GB (11) 2 368 990 (13) A

(43) Date of A Publication 15.05.2002

(21) Application No 0027691.5

(22) Date of Filing 13.11.2000

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(51) INT CL⁷
G01S 5/14

(52) UK CL (Edition T)
H4D DAB D549

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(58) Field of Search
UK CL (Edition S) **H4D DAB DPBC**
INT CL⁷ **G01S 5/14 , G08B 21/00 , G08G 1/0962 1/0967**
ONLINE: INTERNET, EPODOC, WPI, JAPIO

(54) Abstract Title
Location dependent display of material

(57) A system for displaying an item in a device, dependent on the position of the device, comprises a content store 16 which stores a plurality of content items, such as advertisements, each associated with a particular geographical area. A position locating system 12, such as a GPS or a mobile communications device location service is used to determine the position of the device, with a controller 18 provided to compare the determined position with the associated geographical areas in the content store, and display the appropriate content item on display 14. The system may be mounted in a vehicle.

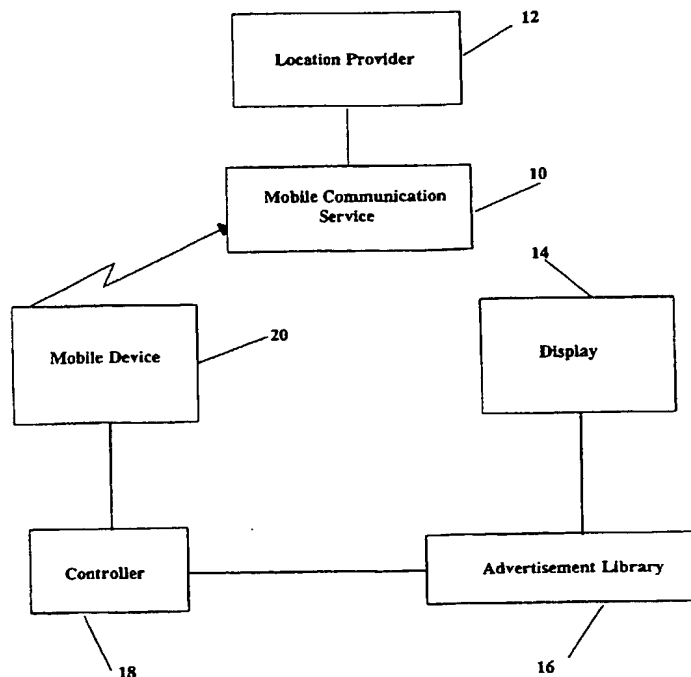


FIGURE 1

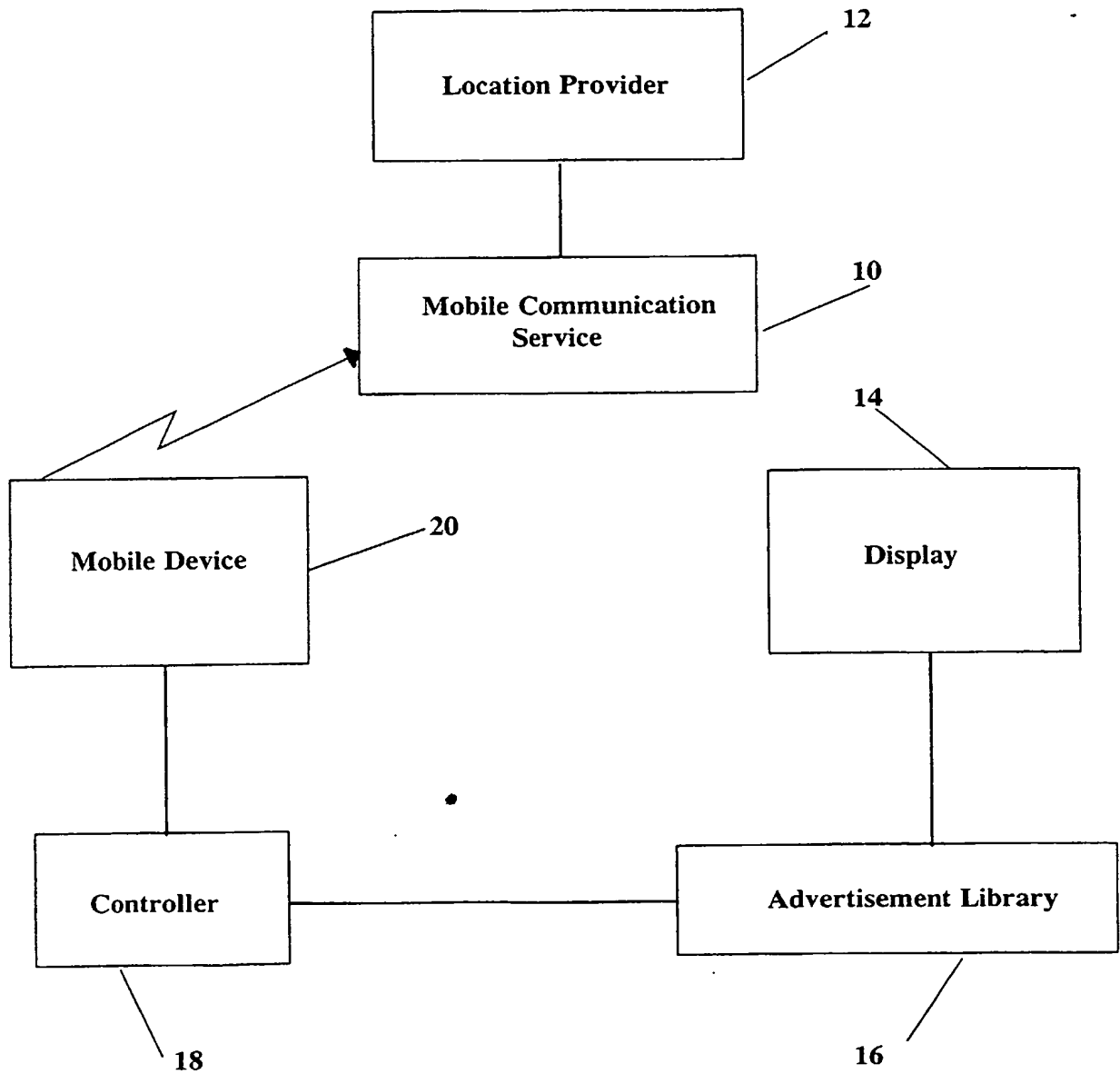


FIGURE 1

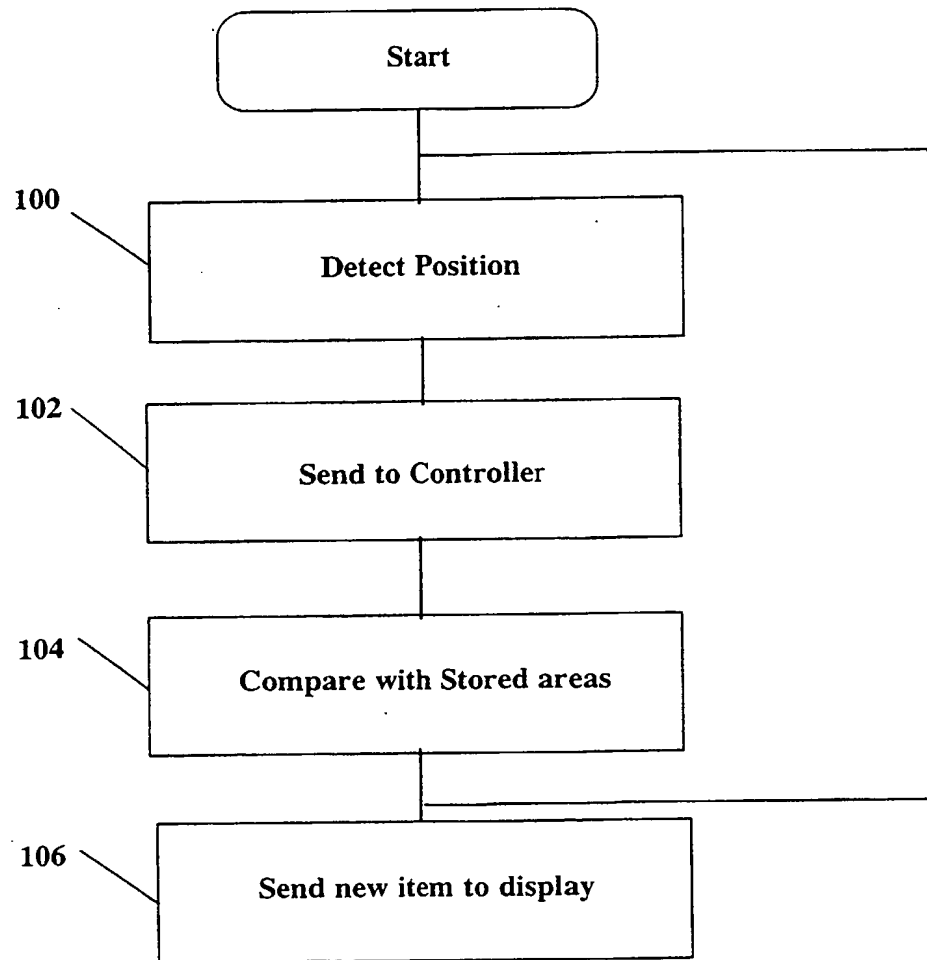


FIGURE 2

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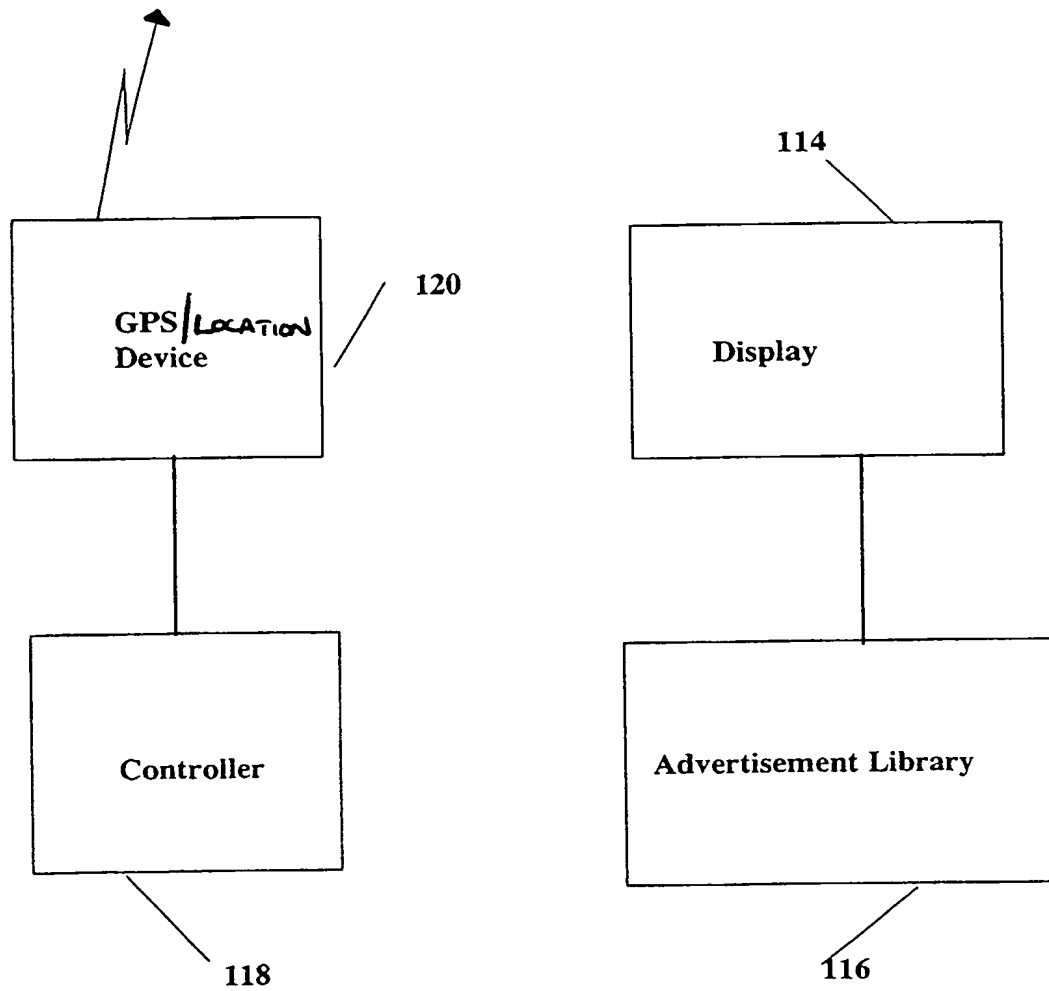


FIGURE 3

LOCATION DEPENDENT DISPLAY OF MATERIAL

FIELD OF THE INVENTION

This invention relates to the display of materials, such as advertising, to consumers and potential consumers. It is particularly concerned with the use of mobile communications technology in the selection of material to be presented for viewing.

BACKGROUND TO THE INVENTION

Techniques for locating the position of a mobile telecommunications device are well known. It is relatively easy for a mobile telephone service operation to tell within which cell a handset is located. However, cells are relatively large, especially in sparsely populated areas. In order to detect position more accurately, one of two techniques is usually used. The first uses a GPS receiver built into the communications device such that position can be determined using the GPS (Global Positioning System) satellite network. The second relies on triangulation based on the relative distance of the handset from the base stations which define the cell within which the handset is located. In one example of this method, triangulation is based on the relative signal strength at each of the base stations.

Typically, position location is contracted out by the service provider to a specialist organisation. In some countries, local laws require that the service provider must be able to determine position accurately, for example, to assist emergency services.

We have appreciated that positioning systems may be used to enhance greatly the services which can be offered to mobile telephone users.

5 The delivery of advertising and informational material to travellers has barely change since the advent of the poster. Travellers are exposed to a variety of sources of information which may or may not be of interest to them. Whilst advertisers can choose the location of their advertisements to target a potential audience, the
10 advertisements remain static. Advertisements displayed on, for example, public transport or taxis are often untargeted and may only be of interest to travellers for a small part of the route, for example when advertising a shop or attraction that is on the route travelled by the vehicle.

15 We have appreciated that positioning systems may be used to target the provision of information such as advertising content to an audience.

According to the invention there is provided a system for displaying content to a viewer, comprising: a store of
20 content to be displayed, the store having a plurality of displayable content items, each having an associated geographical area; a display for displaying a content item from the store; a position locator for determining the position of the system at periodic intervals; a controller
25 for comparing positional information received from the position locator with the geographical areas associated with the displayable content items and for causing the display to display the content item having an associated area including the determined position.

30 The invention also provides a system for displaying content to a viewer, comprising: a store of content to be displayed, the store having a plurality of displayable content items, each having an associated geographical area; a display for

displaying a content item from the store; a position locator for determining the position of the system at periodic intervals; a controller for comparing positional information received from the position locator with the geographical areas associated with the displayable content items and for
5 causing the display to display the appropriate content item.

The invention also provides a method for displaying content to a viewer, comprising: storing a plurality of displayable content items for display, storing an geographical area associated with each stored content item; displaying a
10 content item from the store; determining the position of the system at periodic intervals; comparing the determined position with the geographical areas associated with the displayable content items; and displaying the content item
15 having an associated geographical area including the determined position.

The invention further provides a method for displaying content to a viewer, comprising: storing a plurality of displayable content items for display, storing an
20 geographical area associated with each stored content item; displaying a content item from the store; determining the position of the system at periodic intervals; comparing the determined position with the geographical areas associated with the displayable content items; and displaying the
25 appropriate content item.

Embodiments of the invention have the advantage that advertisers and others can deliver to potential customers advertisements, or other content which is targeted according to geographical area. Thus, for example a shop can
30 advertise on a bus or rail service only when the bus or train is in the vicinity of that shop. Alternatively a cinema or other attraction can advertise only when the bus or train is in the vicinity of that cinema or attraction. The invention is advantageous to transportation operators as

it allows them to collect advertising revenues from a number of sources for each display screen, thus increasing the advertising revenue for each display area.

5 In one preferred embodiment, the position locator comprises a mobile communications device. The mobile communications device preferably communicates with a mobile communications service provider having an associated location service for providing locations of subscribing mobile devices, whereby positional information can be provided to the controller.

10 In another preferred embodiment the position locator is a GPS device.

Preferably, the content store comprises a plurality of displayable content items including displayable images and a default image. The display may show content items in any
15 convenient form to give a very flexible range of display options.

Embodiments of the invention will now be described, by way of example, and with reference to the accompanying drawings, in which:

20 Figure 1 is a block diagram of a system embodying the invention;

Figure 2 is a flow chart illustrating operation of the system of figure 1; and

25 Figure 3 is a block diagram of a second embodiment of the invention.

Referring to figure 1, the embodiment shown comprises a display 14 for displaying media to consumers or potential consumers. The media content can be of any type but is preferably advertising material of targeted information such

as local event or attraction information. The display 14 may be of any type but is preferably as Polymer LCD screen which is cheap and compact.

5 The advertisement or other material to be displayed is provided from an advertisement library 16. The library comprises a store for storing a plurality of displayable content items. The library may contain advertisements in any form including image form, for example stored as JPEG images, or in video form, for example stored as a series of
10 MPEG images. With each content item is stored an associated geographical area; The library is under the control of a controller 18 which determines which image or series of images is presented to the display at any given time.

15 The controller 18 includes a mobile communications device 20. The mobile device functions as a position locator for determining the position of the system at periodic intervals. The device provides information by subscribing to a mobile communications service provided by service provider 10. The service provider 10 is coupled to a
20 location provider 12, by means of which the service provider 10 can determine the position of each of the mobile devices which subscribe to the service at any given time. Positional information relating to the mobile communications device 20 is provided to the controller 18 and used by the
25 controller to determine what image or series of images is to be provided to the display 14.

In this manner the system can be used to provide a series of advertisements or other information to a consumer or potential consumer which changes according to the consumer's
30 geographical location. For example, the system may be installed in a bus or a taxi in a city. At a certain location, the display may show an advertisement for a local shop. That advertisement is of less interest at locations away from that shop and at other locations different

advertisements are shown. When the vehicle carrying the system is near to a tourist attraction the system may switch to display an advertisement, or information, relating to that tourist attraction.

5 It will be appreciated that the actual advertising content is a matter for agreement between advertisers and the system provider. It should also be appreciated that the advertisements switch automatically depending on location. Each advertisement or other displayable data stored in the
10 library has associated with it a geographical identifier which defines the area within which it is to be displayed. When the controller 18 retrieves positional data from the mobile communications service 10, it compares the location retrieved with the location of the current display. If the
15 present location is not within the stored area for the current display the controller checks for the advertisement which is appropriate for that area and then sends the new advertisement to the display. If there is no subscriber for that particular area the system may show a default
20 image. Thus the controller compares positional information received from the position locator with the geographical areas associated with the displayable content items and causes the display to display the content item having an associated area including the determined position.

25 Figure 2 shows, in flow chart form, the operation of the process. At step 100, the Mobile communications system detects the position of the mobile communications device 20 using the location service. This positional information is sent to the controller 18 at step 102. At step 104, the
30 controller compares the received positional information with the defined positional parameter for the current advertisement being displayed. If the received position is within the defined area it takes no action and the process loops back when the next positional data is available. In
35 practice, that location provider will be polled every few

seconds or minutes depending on the velocity of the vehicle in which the system is mounted. If the received positional data is not within the area of the advertisement presently being displayed, the controller, at step 106 examines the areas associated with each of the other areas, including the default display, and sends the appropriate advertisement to the display 14 for presentation to consumers.

The embodiment described uses position location services provided in conjunction with mobile communications services. In the embodiment of figure 3 the controller is connected to a GPS device which inputs positional data directly to the system. The controller then uses that data in the same manner as described with reference to figure 1 and 2. In figure 3 the mobile communications device, the mobile communications system and the associated position location service and no longer required. The GPS device is shown at 120, the controller at 118, the library at 116 and the display at 114.

The embodiments of the invention described have the advantage that they enable advertisers and other content providers to target their material, only presenting it to customers or potential customers at a time when it is most appropriate to them, for example when the customer is near a shop or attraction. The embodiments of the invention have the advantage to operators of vehicles such as public transportation systems, taxis and the like that they only need a single display screen to deliver a large number of advertisements which potential greatly increases advertising revenue. It will be appreciated that the embodiments described are suitable for fitting in any vehicle including, but not limited to, cars, taxis, buses and other road vehicles, trains, trams, ships and aeroplanes.

Many other modifications to the system and method described are possible within the scope of the invention and will

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occur to those skilled in the art. The scope of the invention is limited only by the claims appended hereto.

CLAIMS

1. A system for displaying content to a viewer,
comprising:
 - a store of content to be displayed, the store having a
 - 5 plurality of displayable content items, each having an associated geographical area;
 - a display for displaying a content item from the store;
 - a position locator for determining the position of the system at periodic intervals;
 - 10 a controller for comparing positional information received from the position locator with the geographical areas associated with the displayable content items and for causing the display to display the content item having an associated area including the determined position.
- 15 2. A system according to claim 1, wherein the position locator comprises a mobile communications device.
3. A system according to claim 2, wherein the mobile communications device communicates with a mobile communications service provider having an associated
- 20 location service for providing locations of subscribing mobile devices, whereby positional information can be provided to the controller.
4. A system according to claim 1, wherein the position locator is a GPS device.
- 25 5. A system according to any preceding claim, wherein the content store comprises a plurality of displayable content items including displayable images and a default image.
6. A system for displaying content to a viewer,
comprising:

a store of content to be displayed, the store having a plurality of displayable content items, each having an associated geographical area;

a display for displaying a content item from the store;

5 a position locator for determining the position of the system at periodic intervals;

a controller for comparing positional information received from the position locator with the geographical areas associated with the displayable content items and for
10 causing the display to display the appropriate content item.

7. A system according to any of claims 1 to 6, mounted in a vehicle.

8. A method for displaying content to a viewer, comprising:

15 storing a plurality of displayable content items for display, storing an geographical area associated with each stored content item;

displaying a content item from the store;

determining the position of the system at periodic
20 intervals;

comparing the determined position with the geographical areas associated with the displayable content items; and

displaying the content item having an associated geographical area including the determined position.

25 9. A method according to claim 7, wherein the position is determined using a mobile communications device.

10. A method according to claim 9, wherein the mobile communications device communicates with a mobile communications service provider having an associated
30 location service for providing locations of subscribing mobile devices, whereby positional information can be provided for the comparison.

11. A method according to claim 7, wherein the positional information is determined using a GPS device.

12. A method according to any of claims 7 to 11, wherein the storing of a plurality of displayable content items
5 including storing displayable images and a default image.

13. A method for displaying content to a viewer, comprising:

storing a plurality of displayable content items for display, storing an geographical area associated with each
10 stored content item;

displaying a content item from the store;

determining the position of the system at periodic intervals;

comparing the determined position with the geographical
15 areas associated with the displayable content items; and displaying the appropriate content item.

14. A system for displaying content to a viewer, substantially as herein described with reference to figures 1 and 2, or 3 of the accompanying drawings.

20 15. A method for displaying content to a viewer, substantially as herein described with reference to figures 1 and 2, or 3 of the accompanying drawings.



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Application No: GB 0027691.5
Claims searched: All

Examiner: Simon Berry
Date of search: 26 June 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.S): H4D (DAB, DPBC)
Int Cl (Ed.7): G01S 5/14; G08G 1/0962, 1/0967; G08B 21/00
Other: ONLINE: INTERNET, EPODOC, WPI, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2353160 A	(GALE) See whole document.	1,2,4,6-9,11,13 at least
X	EP 0875729 A2	(PIONEER) See whole document.	1,2,4,6-9,11,13 at least
X	EP 0789344 A1	(SCHRIMPF) See WPI abstract.	1,2,4,6-9,11,13 at least
X	EP 0720137 A2	(OMRON CORP.) See whole document, especially pages 2-5.	1-4,6-10,11,13 at least
X	EP 0508787 A2	(PIONEER) See whole document.	1,2,4,6-9,11,13 at least
X	WO 97/47095 A1	(SK TELECOM) See whole document, especially pages 3-7.	1-10,11-13 at least
X	WO 96/21161 A1	(HUSTON) See abstract for example.	1-4,6-10,11,13 at least

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E Patent document published on or after, but with priority date earlier than, the filing date of this application.



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INVESTOR IN PEOPLE

Application No: GB 0027691.5
Claims searched: All

Examiner: Simon Berry
Date of search: 26 June 2001

Category	Identity of document and relevant passage	Relevant to claims
X	US 5767795 (DELTA INFORMATION SYSTEMS) See whole document.	1,2,4,6-9,11,13 at least
X	US 5717392 (ELDRIDGE) See whole document.	1,2,4,6-9,11,13 at least
X	http://www.vert.net/press_pages/siliconalley_1.html , 'Beyond the Yahoo Cabs: Introducing the Next Generation of Wired Taxis', published 29 Sept 2000. See article.	1,2,4,6-9,11,13 at least
X	http://www.parview.com/ds/advert_opt.htm , Provision of advertising material to golfers on course. See whole document.	1,2,4,6-9,11,13 at least

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
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